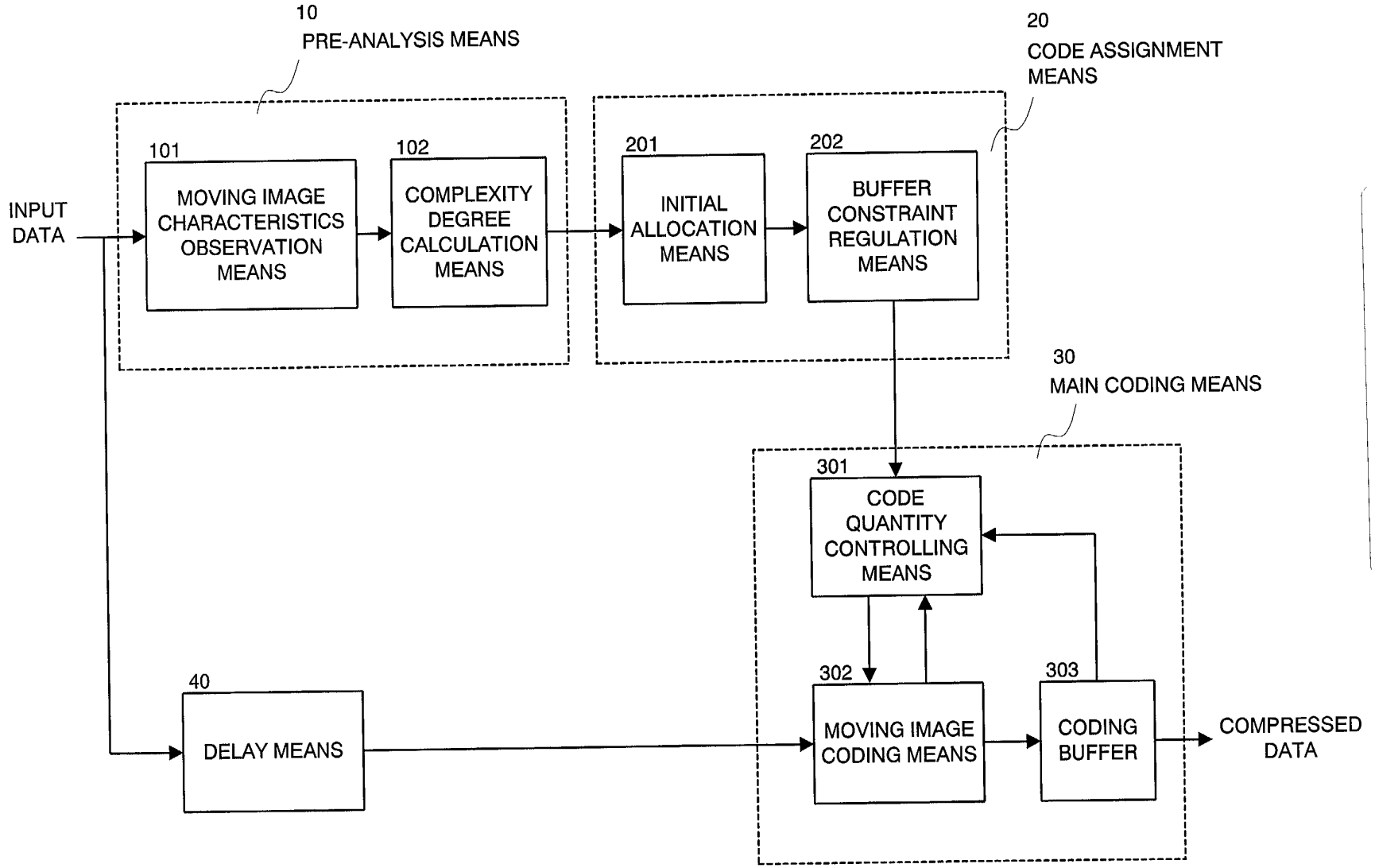
20070 "3628500

FIG. 1



Title: MOVING IMAGE CODING DEVICE, MOVING IMAGE CODING METHOD AND PROGRAM THEREOF EMPLOYING PRE-ANALYSIS
Inventor(s): Yutaka YOKOYAMA
Docket No. 070639-0138

FIG. 2

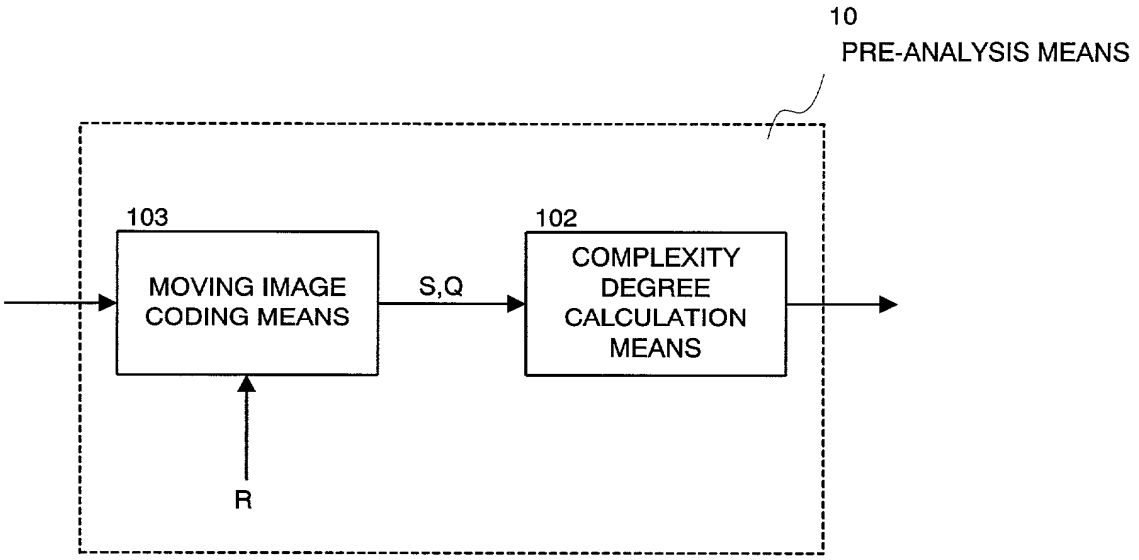

10
PRE-ANALYSIS MEANS
103
MOVING IMAGE CODING MEANS
S,Q
102
COMPLEXITY DEGREE CALCULATION MEANS
R

FIG. 3

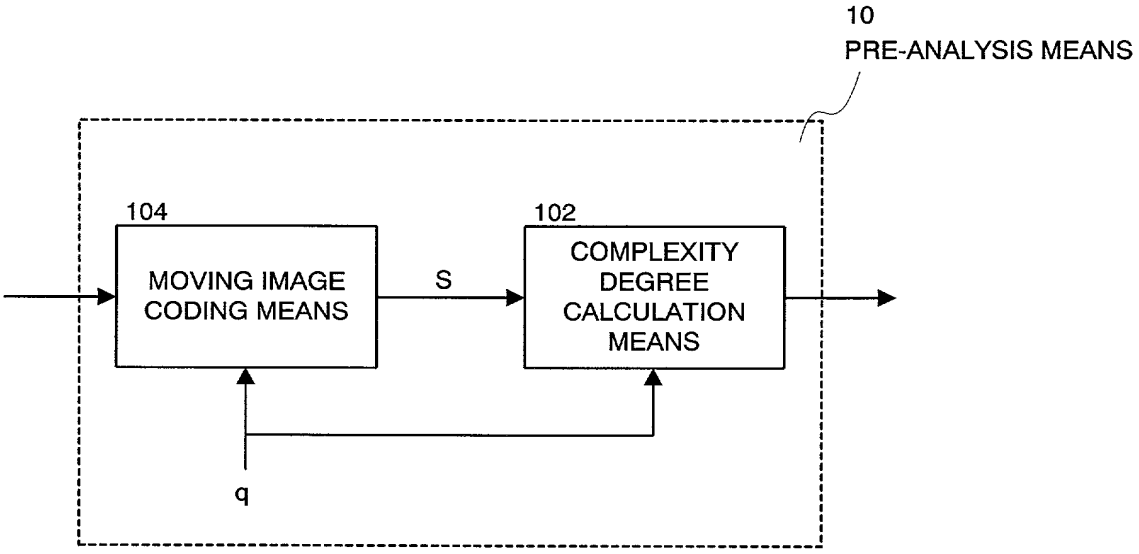

10
PRE-ANALYSIS MEANS
104
MOVING IMAGE CODING MEANS
S
102
COMPLEXITY DEGREE CALCULATION MEANS
q

FIG. 4A

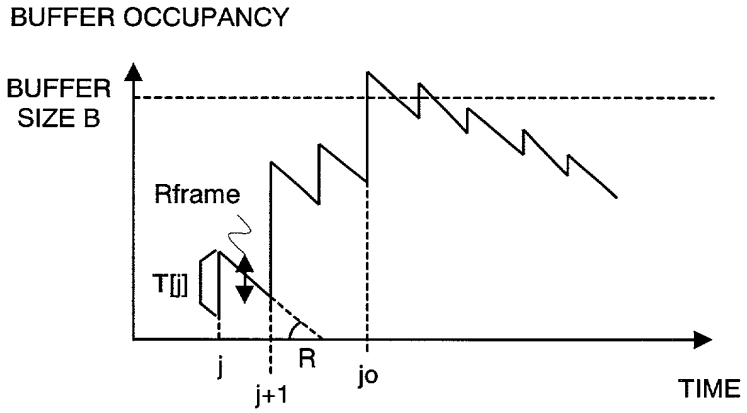
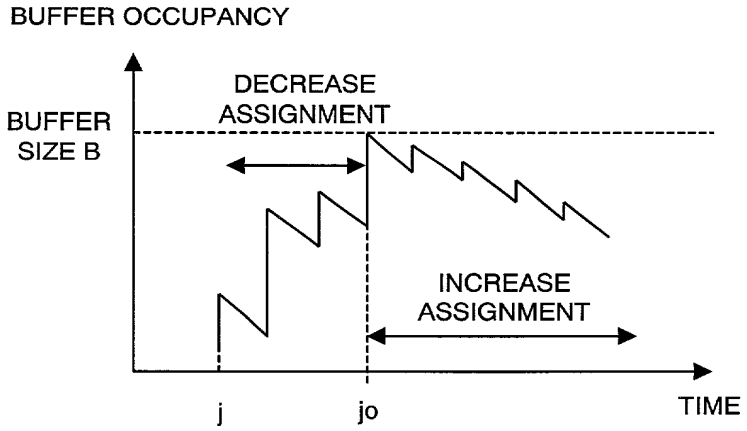


FIG. 4B



20080130.070639.0138

FIG. 5A

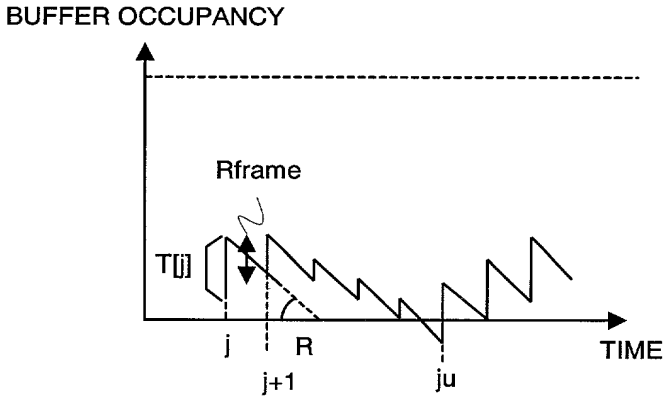

BUFFER OCCUPANCY
Rframe
T[j]
j
R
j+1
ju
TIME

FIG. 5B

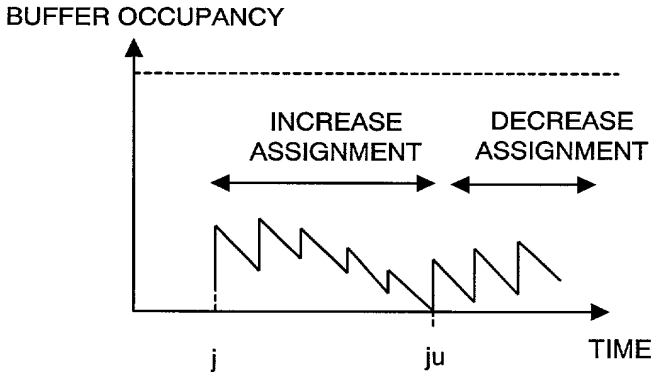

BUFFER OCCUPANCY
INCREASE ASSIGNMENT
DECREASE ASSIGNMENT
j
ju
TIME

FIG. 6

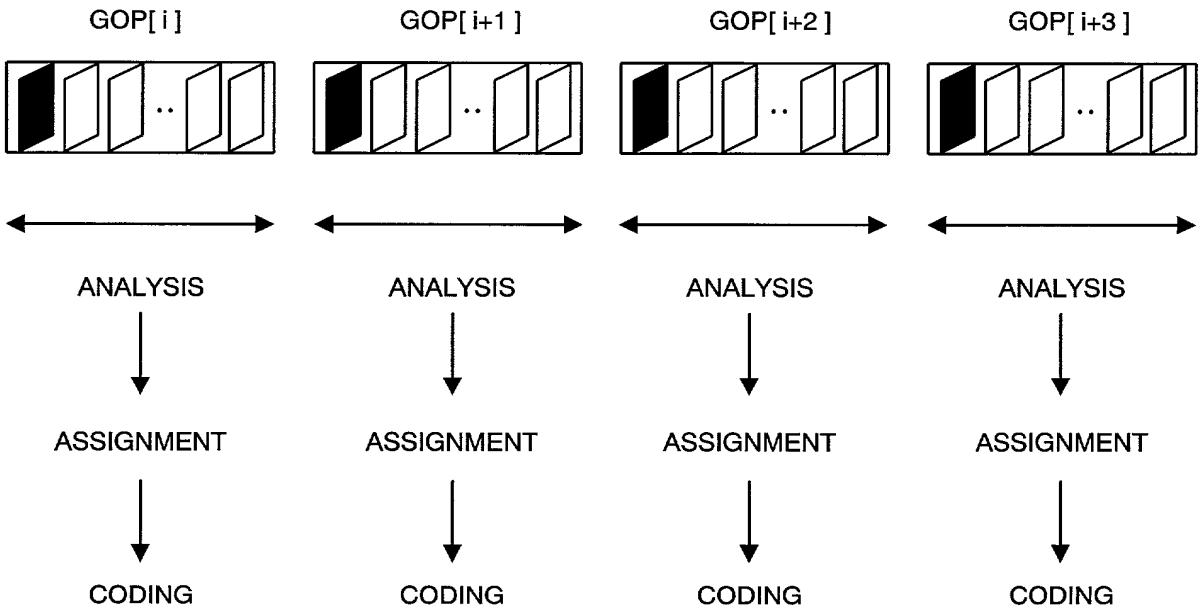

GOP[i]
GOP[i+1]
GOP[i+2]
GOP[i+3]
ANALYSIS
ANALYSIS
ANALYSIS
ANALYSIS
ASSIGNMENT
ASSIGNMENT
ASSIGNMENT
ASSIGNMENT
CODING
CODING
CODING
CODING

FIG. 7

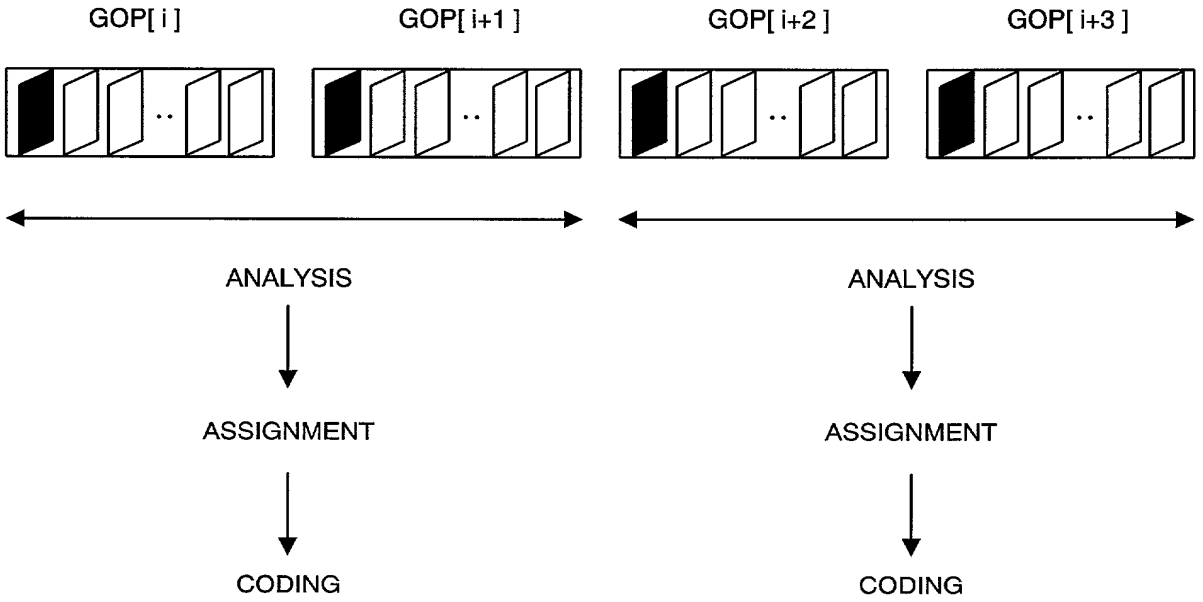

GOP[i]
GOP[i+1]
GOP[i+2]
GOP[i+3]
ANALYSIS
ANALYSIS
ASSIGNMENT
ASSIGNMENT
CODING
CODING

FIG. 8

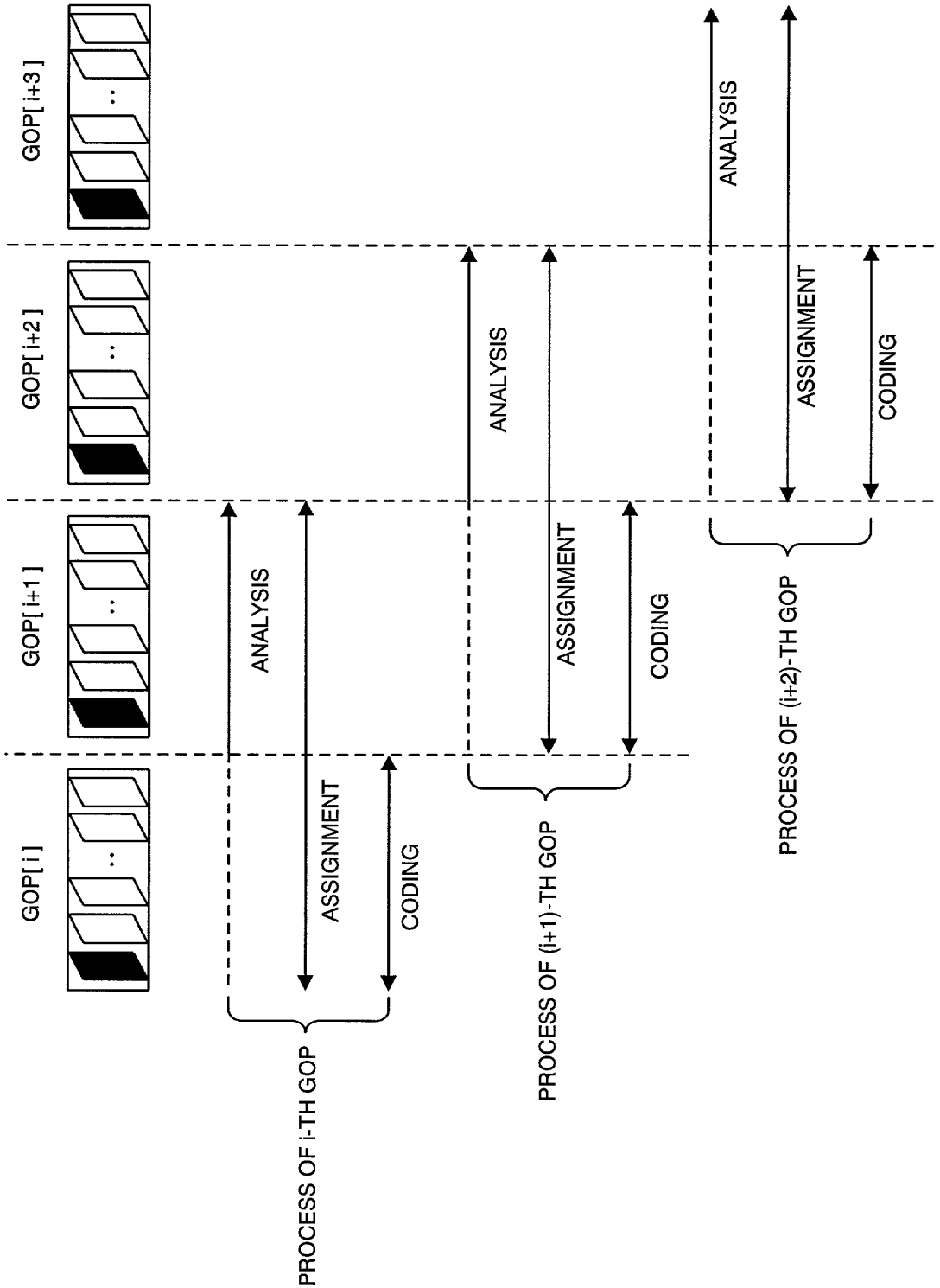

GOP[i]
GOP[i+1]
GOP[i+2]
GOP[i+3]
ANALYSIS
ASSIGNMENT
CODING
PROCESS OF i-TH GOP
ANALYSIS
ASSIGNMENT
CODING
PROCESS OF (i+1)-TH GOP
ANALYSIS
ASSIGNMENT
CODING
PROCESS OF (i+2)-TH GOP

FIG. 9

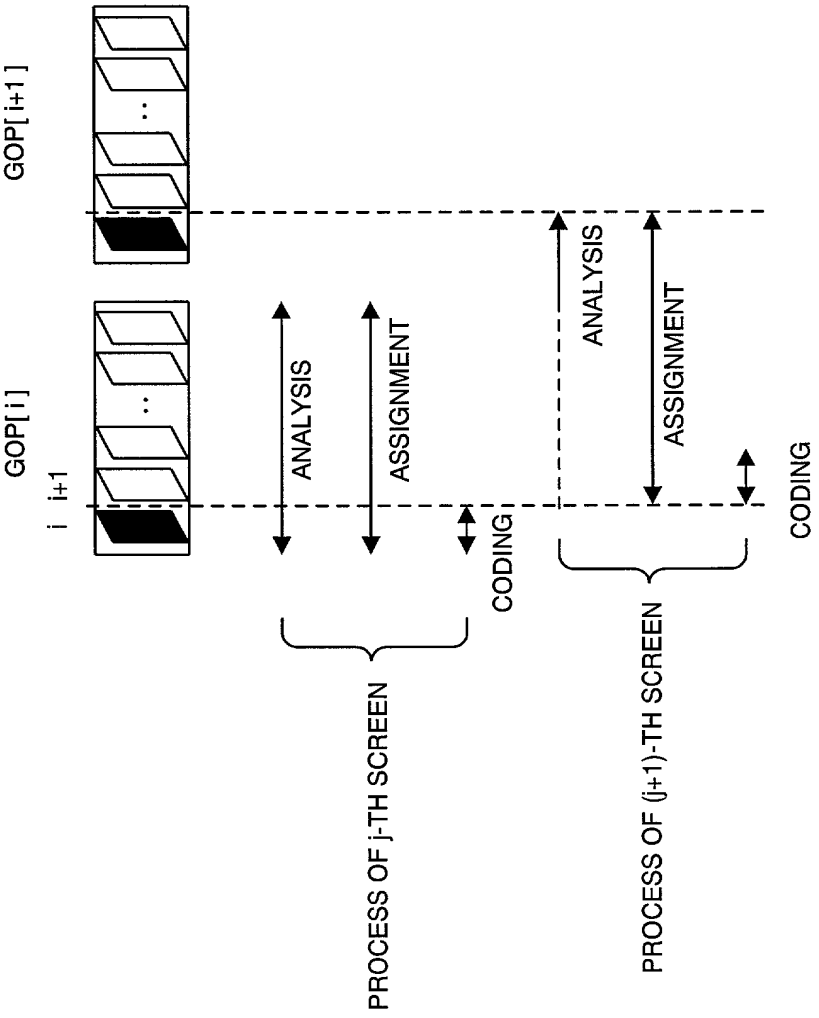

GOP[i]
GOP[i+1]
i
i+1
ANALYSIS
ASSIGNMENT
CODING
ANALYSIS
ASSIGNMENT
CODING
PROCESS OF j-TH SCREEN
PROCESS OF (j+1)-TH SCREEN

FIG. 10

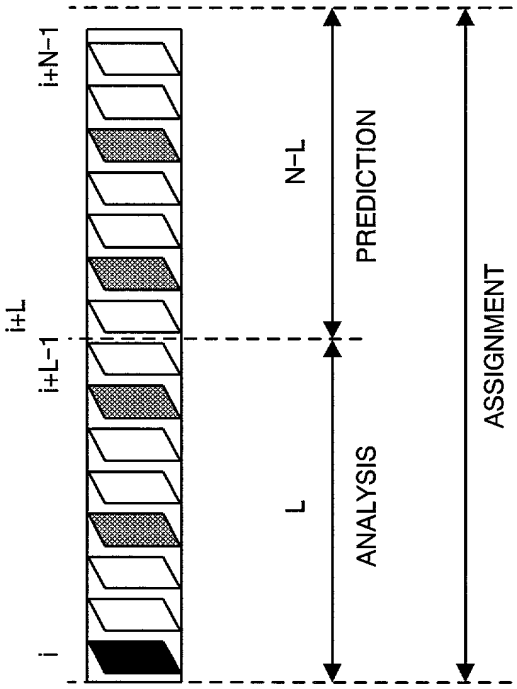


FIG. 11

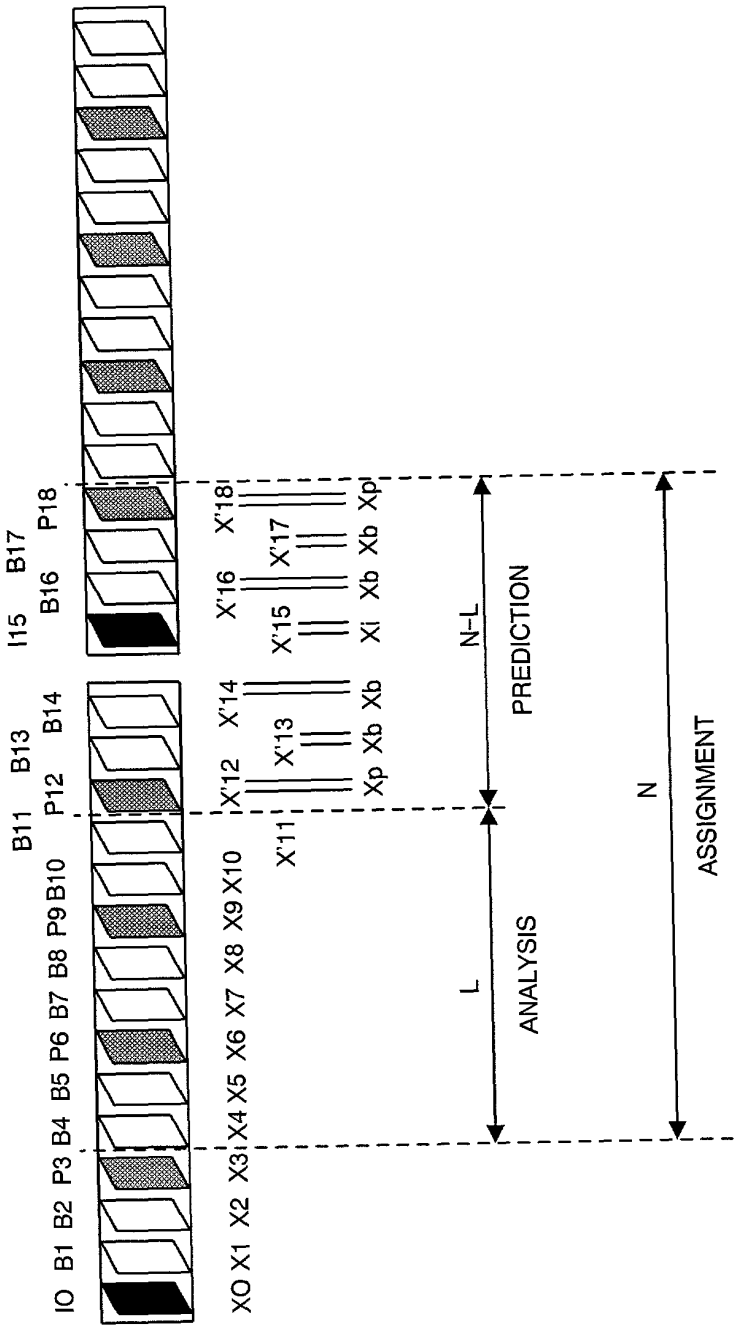

I0 B1 B2 P3 B4 B5 P6 B7 B8 P9 B10 B11 P12 B13 B14 I15 B16 B17 P18
X0 X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X'11 X'12 X'13 X'14 X'15 X'16 X'17 X'18
Xp Xb Xb Xb Xi Xb Xb Xp
L
ANALYSIS
N-L
PREDICTION
N
ASSIGNMENT

FIG. 12

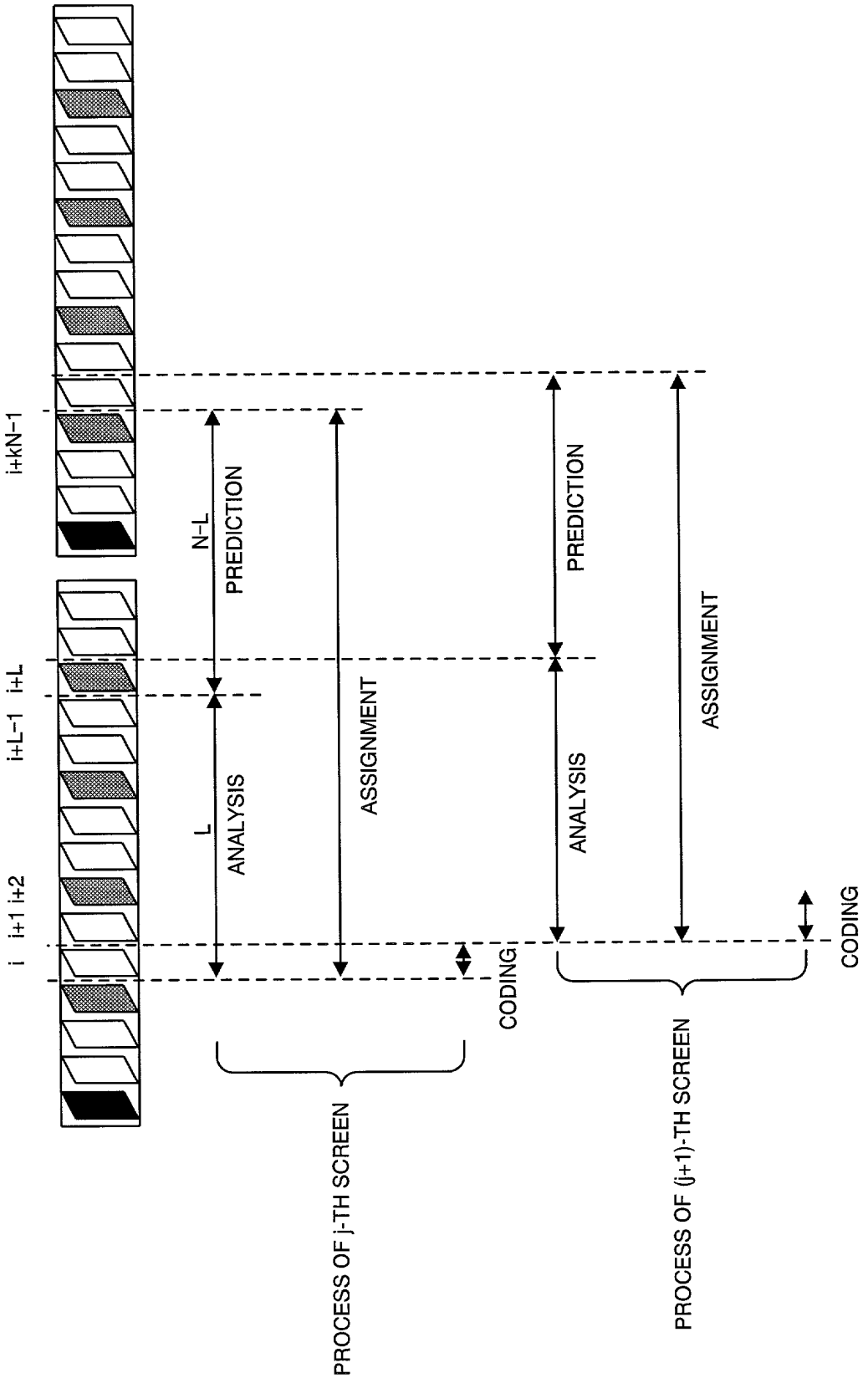

i
i+1
i+2
i+L-1
i+L
i+kN-1
L
ANALYSIS
N-L
PREDICTION
ASSIGNMENT
CODING
PROCESS OF j-TH SCREEN
ANALYSIS
PREDICTION
ASSIGNMENT
CODING
PROCESS OF (j+1)-TH SCREEN

FIG. 13

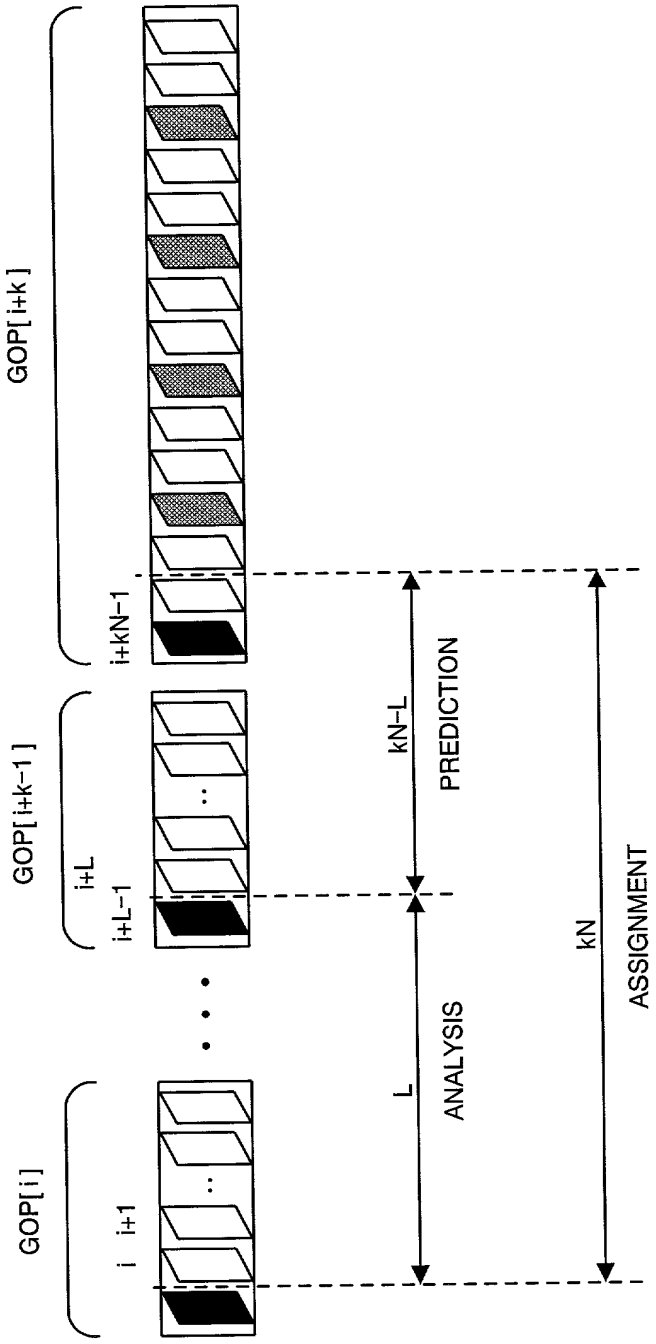
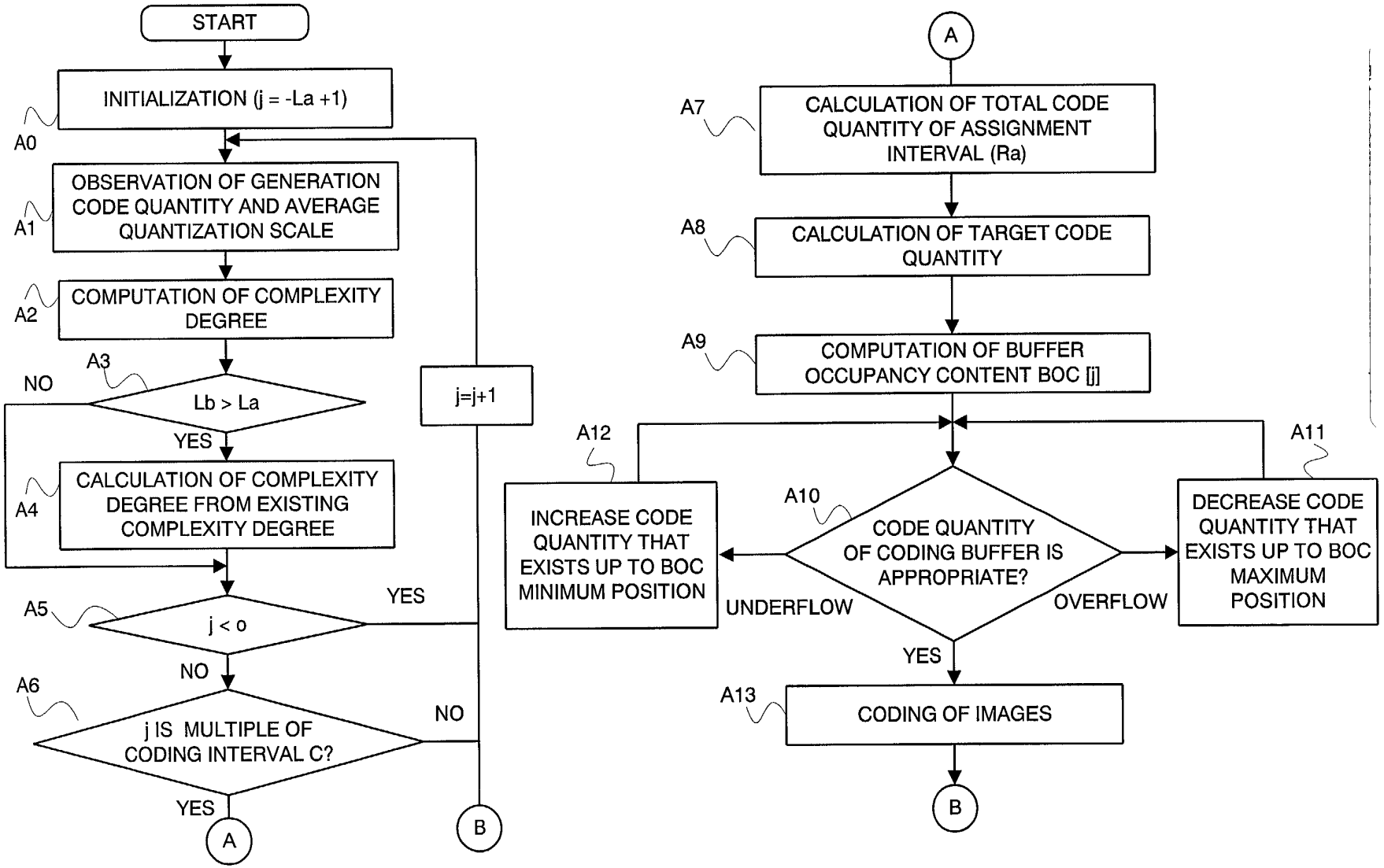

GOP[i+k]
i+kN-1
GOP[i+k-1]
i+L
i+L-1
GOP[i]
i
i+1
kN-L
PREDICTION
L
ANALYSIS
kN
ASSIGNMENT

FIG. 14



Title: MOVING IMAGE CODING DEVICE, MOVING IMAGE CODING METHOD AND PROGRAM THEREOF EMPLOYING PRE-ANALYSIS
Inventor(s): Yutaka YOKOYAMA
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FIG. 15

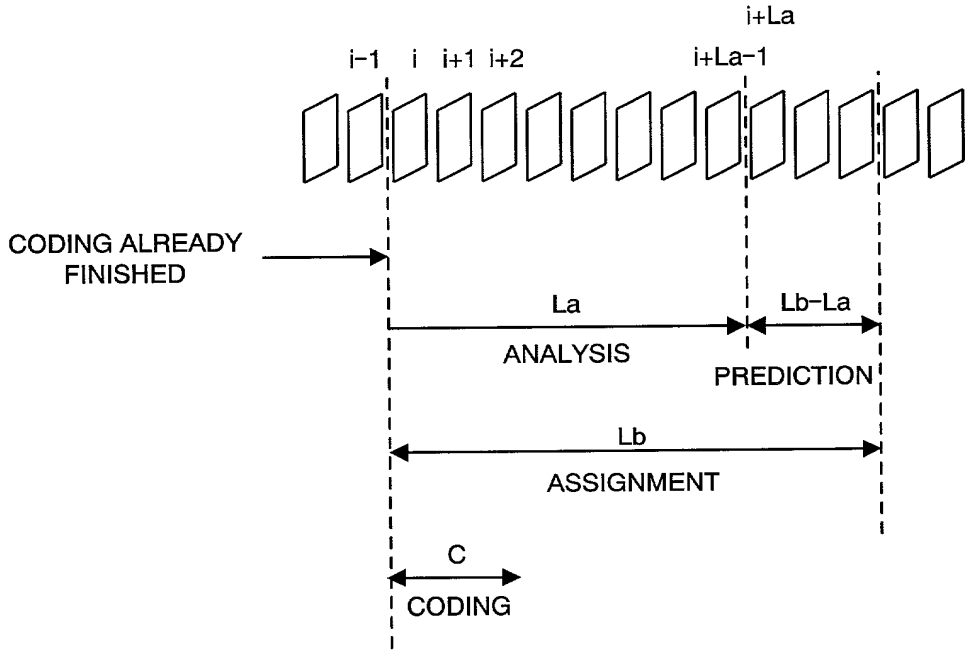

i+La
i-1
i
i+1
i+2
i+La-1
CODING ALREADY FINISHED
La
Lb-La
ANALYSIS
PREDICTION
Lb
ASSIGNMENT
C
CODING

FIG. 16

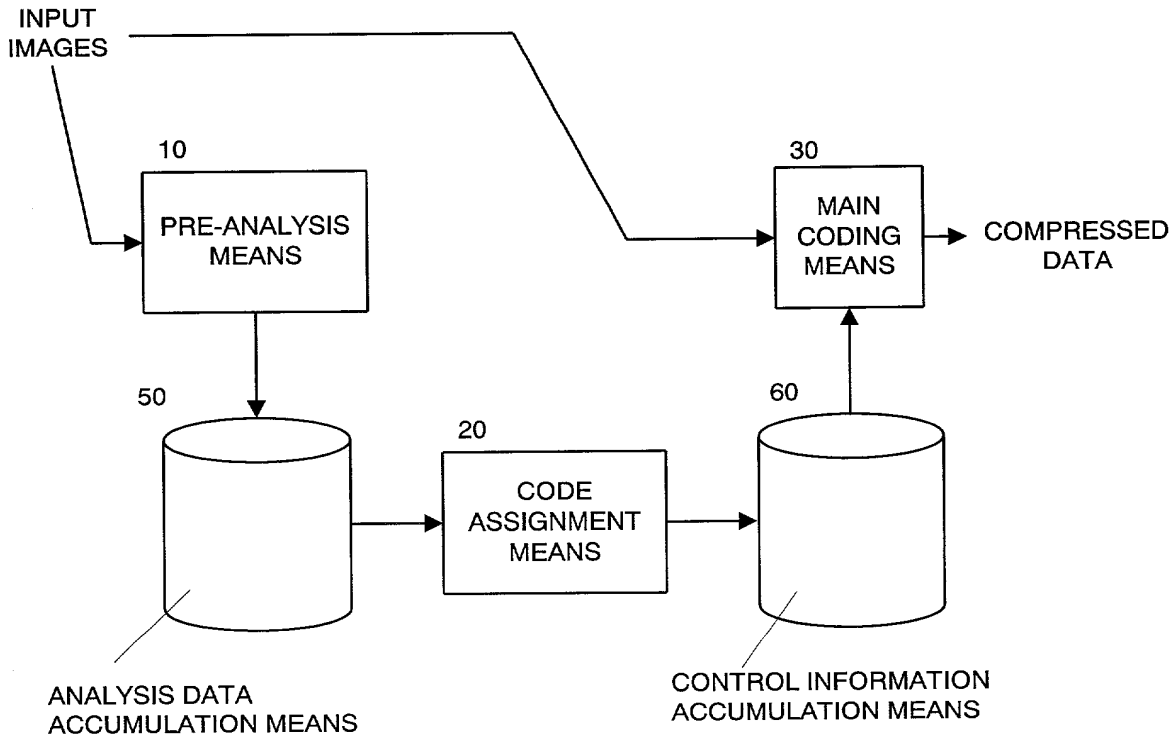
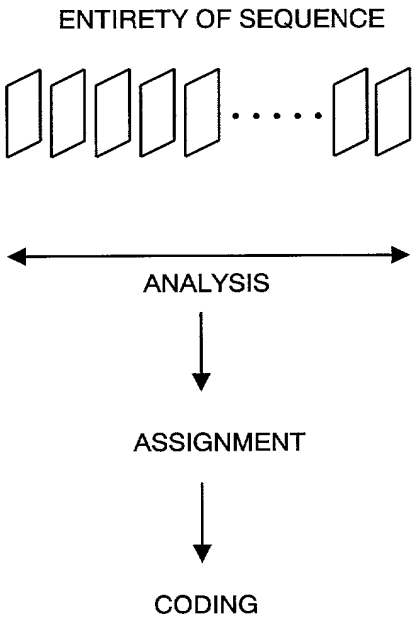

INPUT IMAGES
10
PRE-ANALYSIS MEANS
30
MAIN CODING MEANS
COMPRESSED DATA
50
20
CODE ASSIGNMENT MEANS
60
ANALYSIS DATA ACCUMULATION MEANS
CONTROL INFORMATION ACCUMULATION MEANS

FIG. 17



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FIG. 18

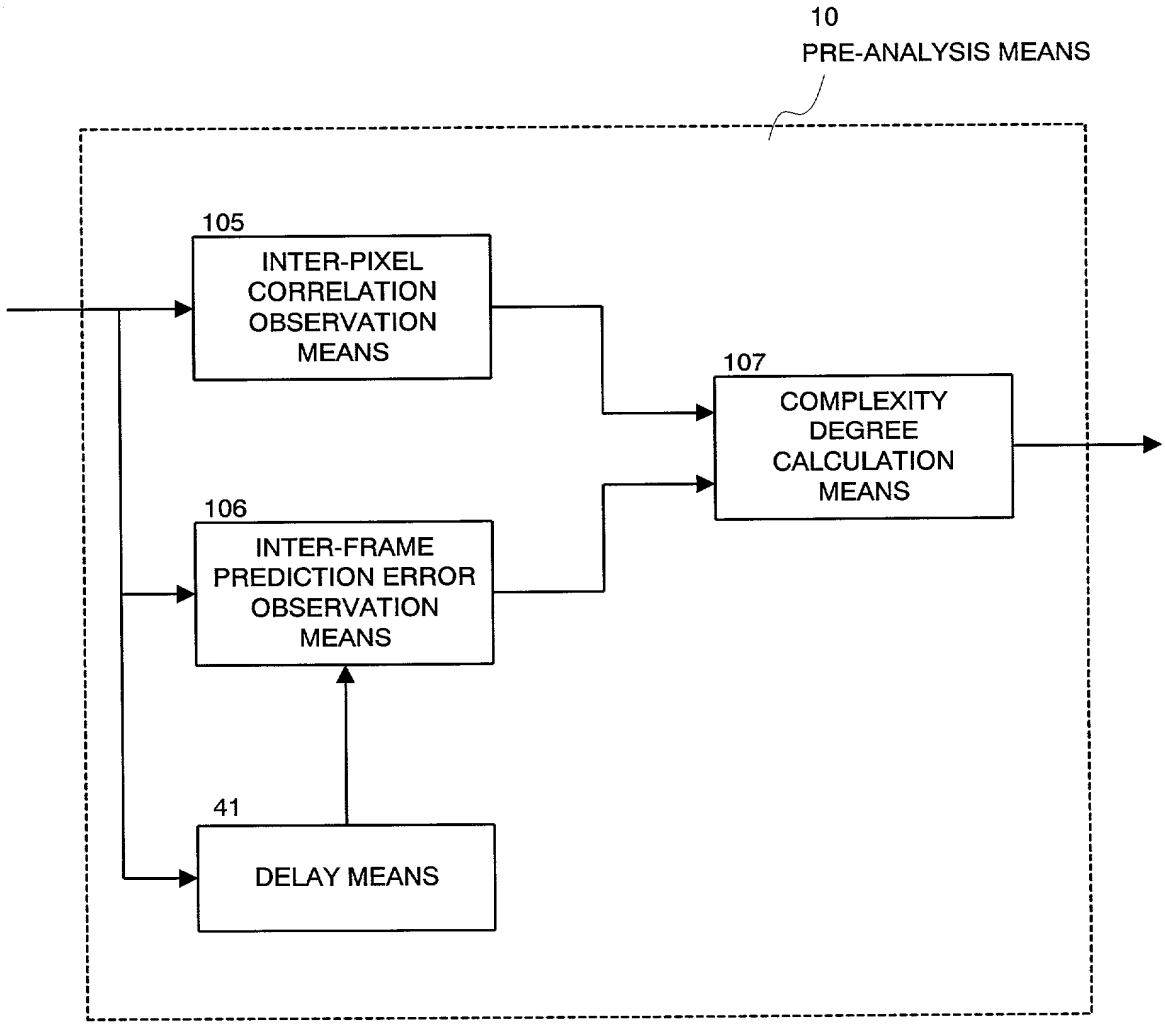
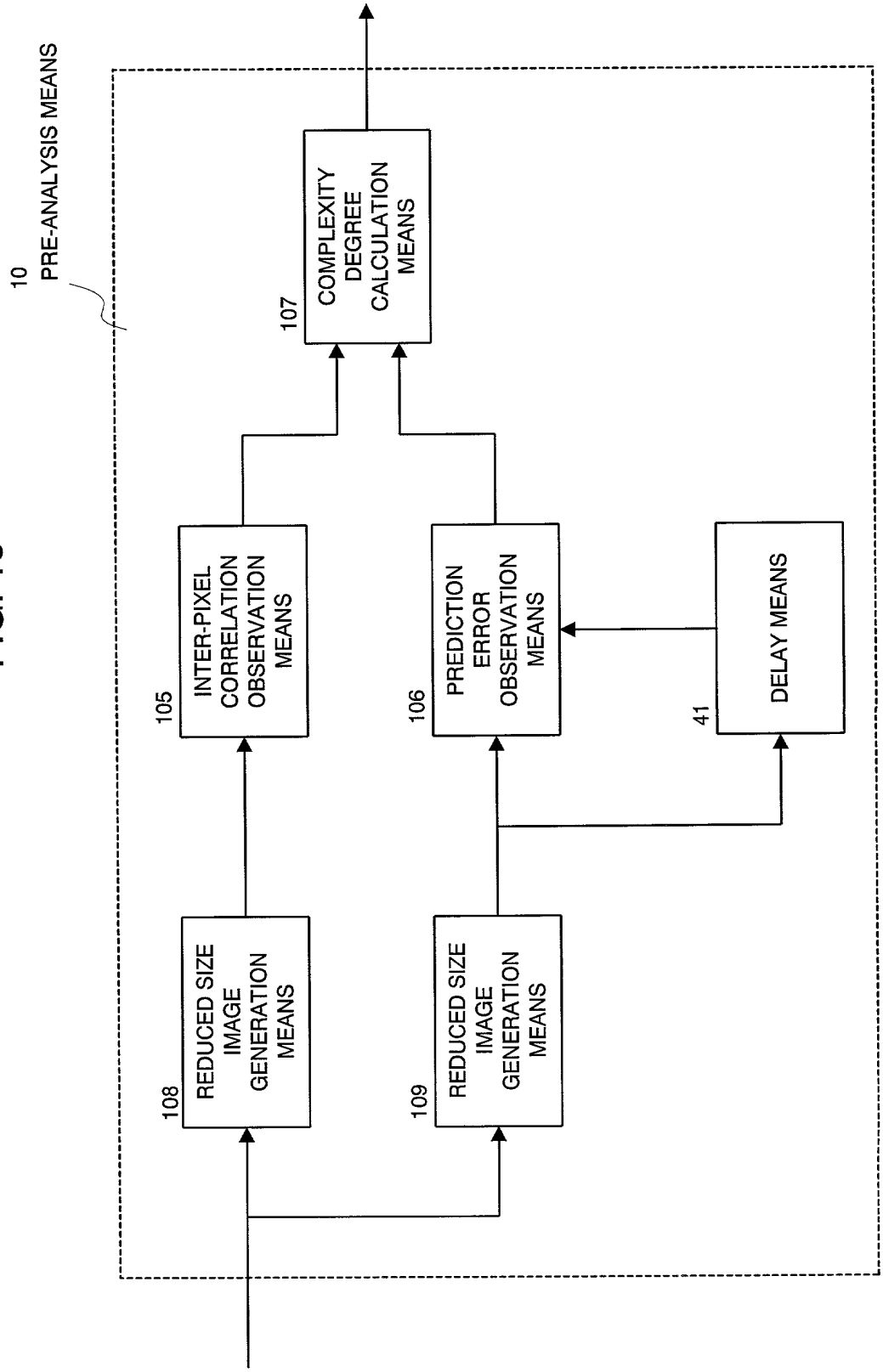

10
PRE-ANALYSIS MEANS
105
INTER-PIXEL CORRELATION OBSERVATION MEANS
107
COMPLEXITY DEGREE CALCULATION MEANS
106
INTER-FRAME PREDICTION ERROR OBSERVATION MEANS
41
DELAY MEANS

FIG. 19


10
PRE-ANALYSIS MEANS
107
COMPLEXITY DEGREE CALCULATION MEANS
105
INTER-PIXEL CORRELATION OBSERVATION MEANS
106
PREDICTION ERROR OBSERVATION MEANS
41
DELAY MEANS
108
REDUCED SIZE IMAGE GENERATION MEANS
109
REDUCED SIZE IMAGE GENERATION MEANS

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FIG. 20

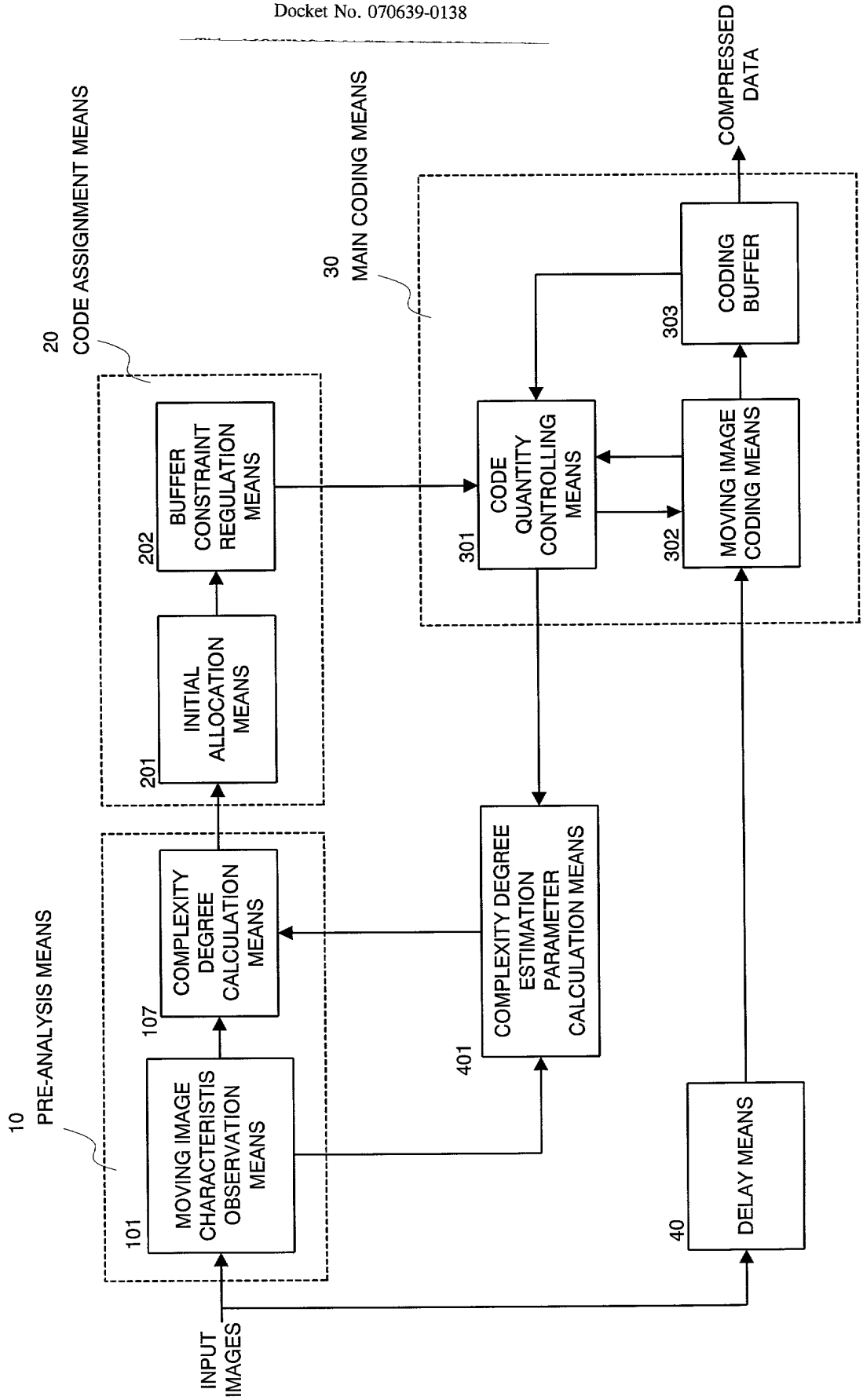


FIG. 21

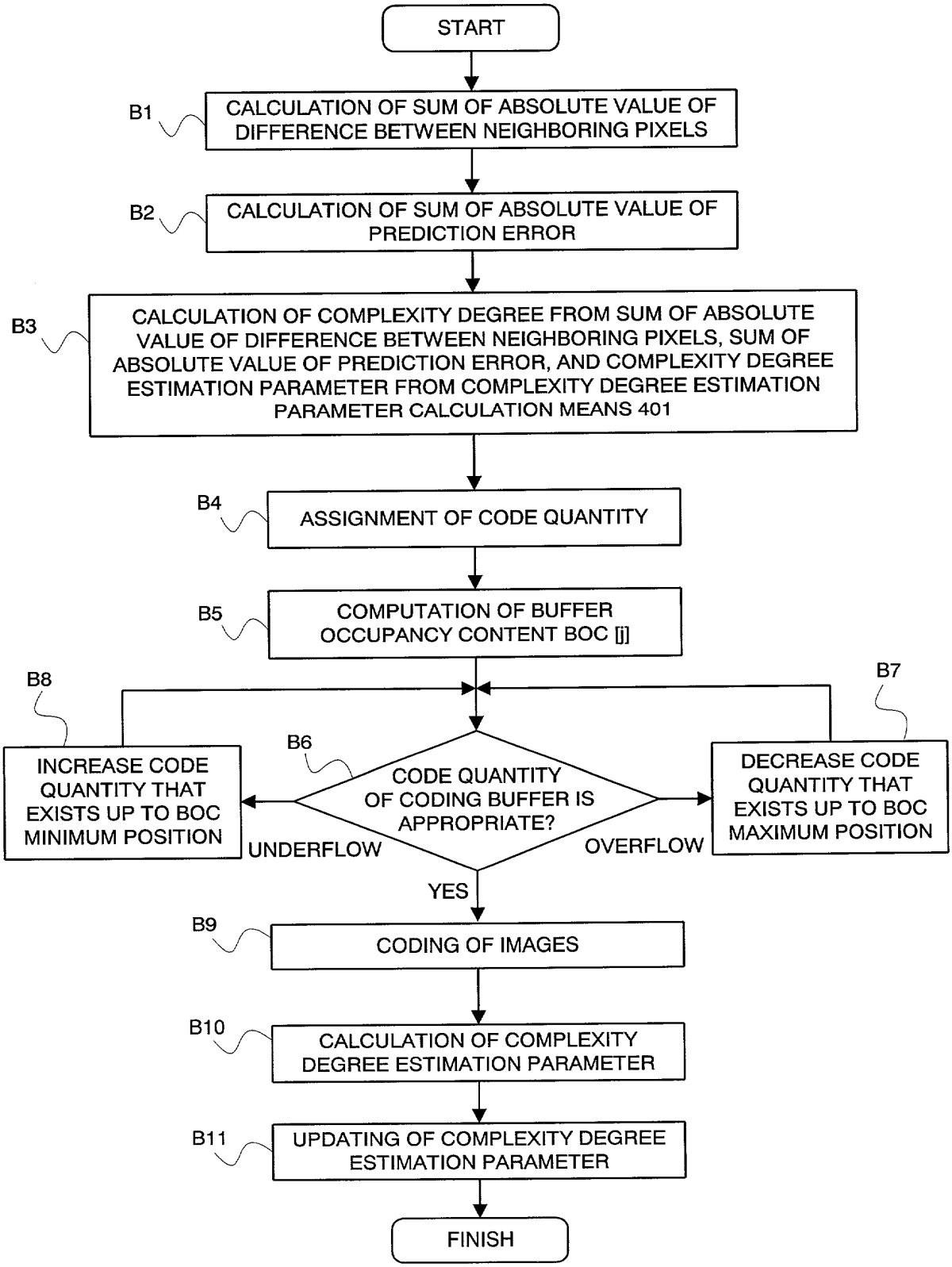
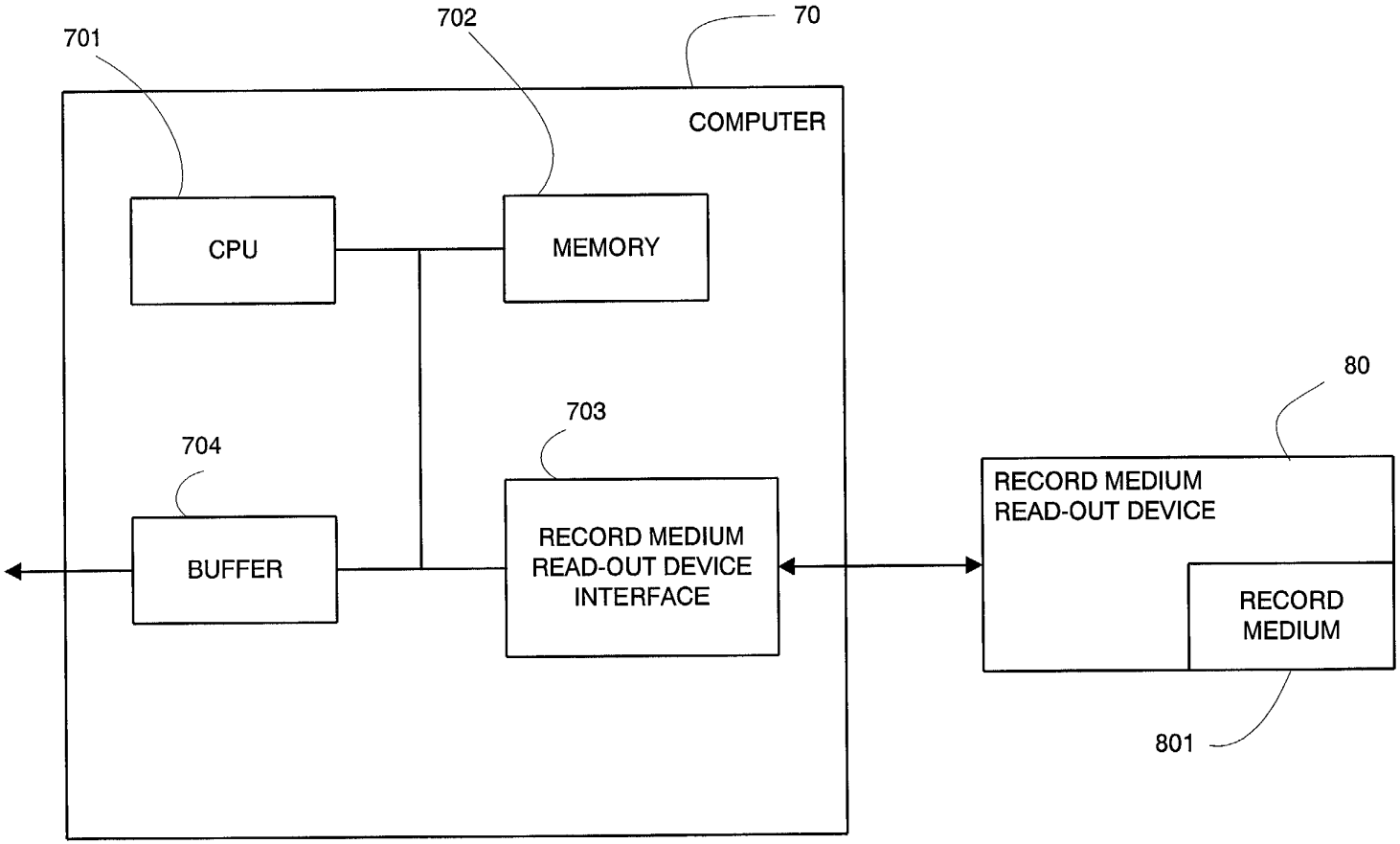

START
B1
CALCULATION OF SUM OF ABSOLUTE VALUE OF DIFFERENCE BETWEEN NEIGHBORING PIXELS
B2
CALCULATION OF SUM OF ABSOLUTE VALUE OF PREDICTION ERROR
B3
CALCULATION OF COMPLEXITY DEGREE FROM SUM OF ABSOLUTE VALUE OF DIFFERENCE BETWEEN NEIGHBORING PIXELS, SUM OF ABSOLUTE VALUE OF PREDICTION ERROR, AND COMPLEXITY DEGREE ESTIMATION PARAMETER FROM COMPLEXITY DEGREE ESTIMATION PARAMETER CALCULATION MEANS 401
B4
ASSIGNMENT OF CODE QUANTITY
B5
COMPUTATION OF BUFFER OCCUPANCY CONTENT BOC [j]
B8
B7
B6
INCREASE CODE QUANTITY THAT EXISTS UP TO BOC MINIMUM POSITION
CODE QUANTITY OF CODING BUFFER IS APPROPRIATE?
DECREASE CODE QUANTITY THAT EXISTS UP TO BOC MAXIMUM POSITION
UNDERFLOW
OVERFLOW
YES
B9
CODING OF IMAGES
B10
CALCULATION OF COMPLEXITY DEGREE ESTIMATION PARAMETER
B11
UPDATING OF COMPLEXITY DEGREE ESTIMATION PARAMETER
FINISH

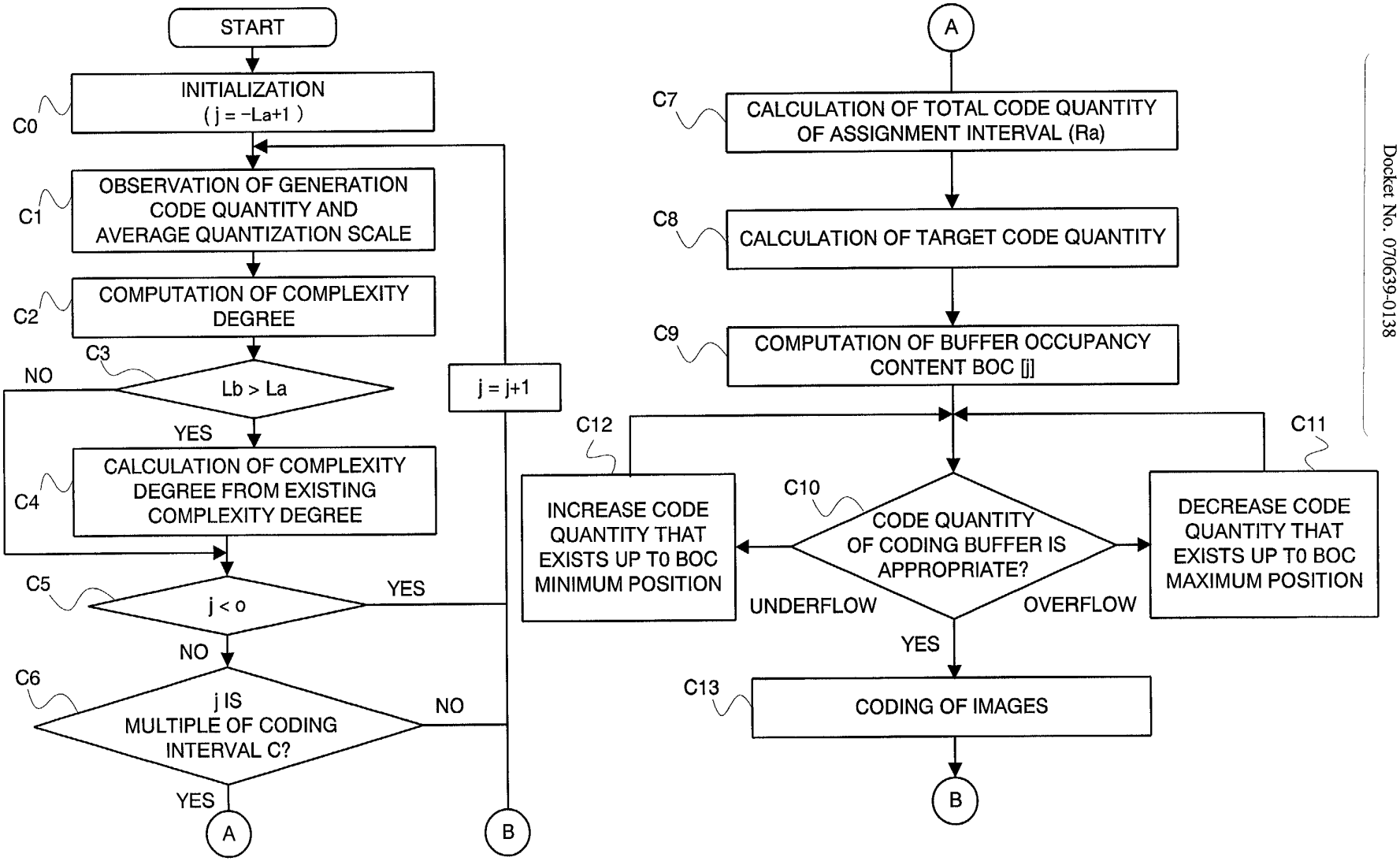
FIG. 22



Title: MOVING IMAGE CODING DEVICE, MOVING IMAGE CODING METHOD AND PROGRAM THEREOF EMPLOYING PRE-ANALYSIS
Inventor(s): Yutaka YOKOYAMA
Docket No. 070639-0138

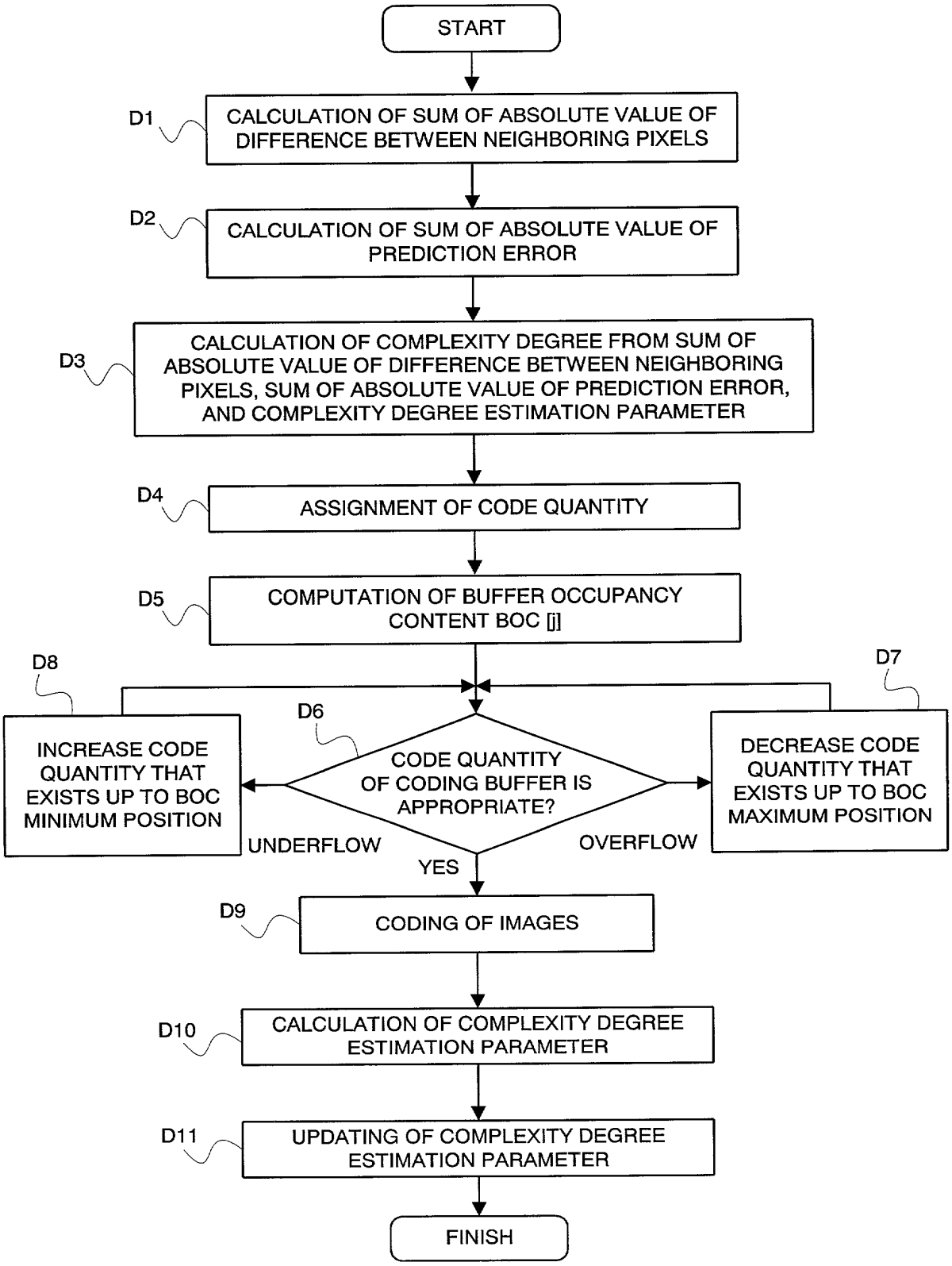
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FIG. 23



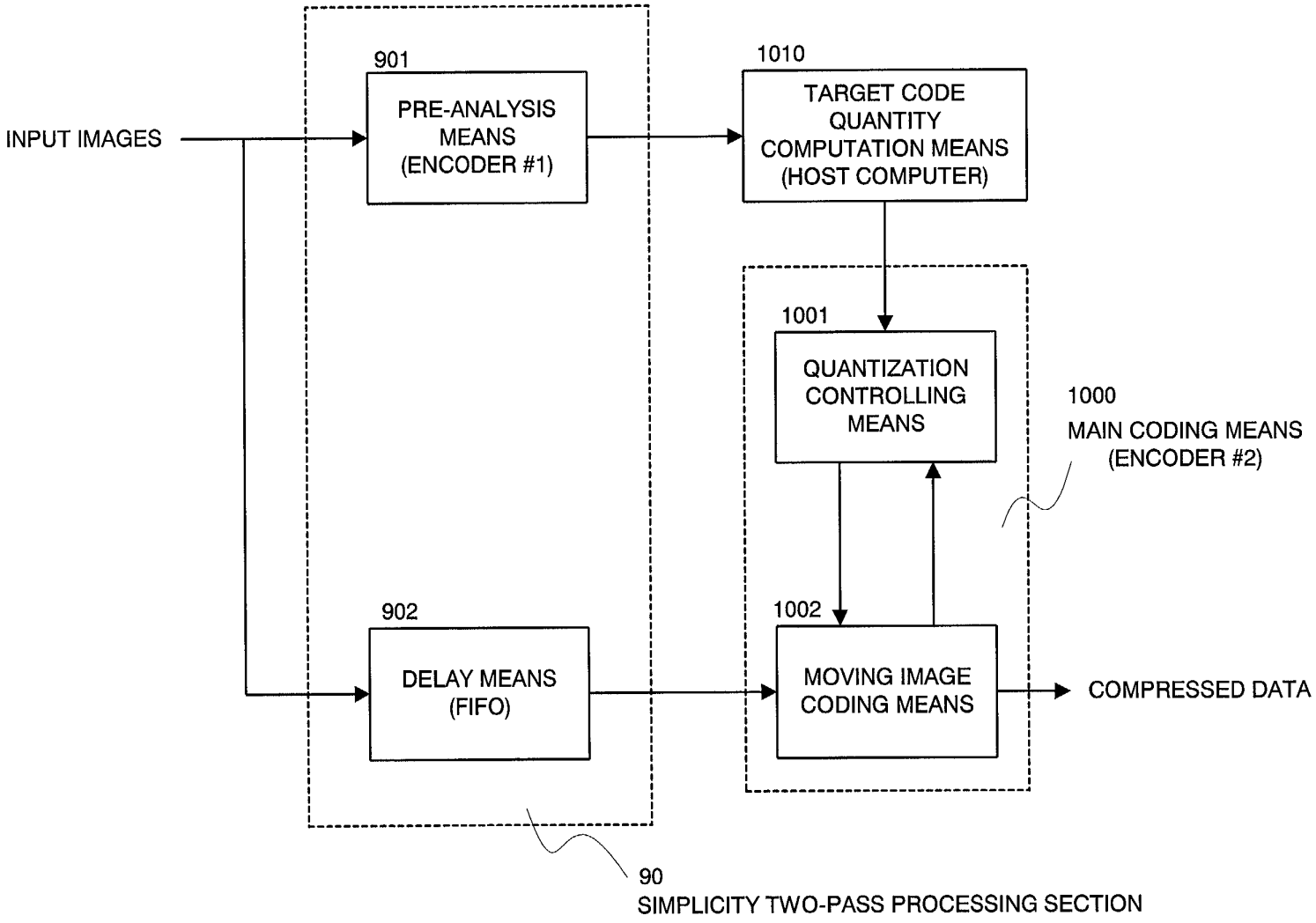
Title: MOVING IMAGE CODING DEVICE, MOVING IMAGE CODING METHOD AND PROGRAM THEREOF EMPLOYING PRE-ANALYSIS
Inventor(s): Yutaka YOKOYAMA
Docket No. 070639-0138

FIG. 24


START
D1
CALCULATION OF SUM OF ABSOLUTE VALUE OF DIFFERENCE BETWEEN NEIGHBORING PIXELS
D2
CALCULATION OF SUM OF ABSOLUTE VALUE OF PREDICTION ERROR
D3
CALCULATION OF COMPLEXITY DEGREE FROM SUM OF ABSOLUTE VALUE OF DIFFERENCE BETWEEN NEIGHBORING PIXELS, SUM OF ABSOLUTE VALUE OF PREDICTION ERROR, AND COMPLEXITY DEGREE ESTIMATION PARAMETER
D4
ASSIGNMENT OF CODE QUANTITY
D5
COMPUTATION OF BUFFER OCCUPANCY CONTENT BOC [j]
D8
D7
D6
INCREASE CODE QUANTITY THAT EXISTS UP TO BOC MINIMUM POSITION
CODE QUANTITY OF CODING BUFFER IS APPROPRIATE?
DECREASE CODE QUANTITY THAT EXISTS UP TO BOC MAXIMUM POSITION
UNDERFLOW
OVERFLOW
YES
D9
CODING OF IMAGES
D10
CALCULATION OF COMPLEXITY DEGREE ESTIMATION PARAMETER
D11
UPDATING OF COMPLEXITY DEGREE ESTIMATION PARAMETER
FINISH

20070" 9625907

FIG. 25



Title: MOVING IMAGE CODING DEVICE, MOVING IMAGE CODING METHOD AND PROGRAM THEREOF EMPLOYING PRE-ANALYSIS
Inventor(s): Yutaka YOKOYAMA
Docket No. 070639-0138

FIG. 26

